Claims

1. Method for interference suppression for TDMA and/or FDMA transmission, which at least approximately can be described as pulse amplitude modulation, with an arbitrary number of receive antennas, which comprises the following step:
   a) filtering of at least one complex-valued received signal $r_i[k]$ of one receive antenna with a filter with complex-valued coefficients $f_i[k]$ for generation of at least one output signal $y_i[k]$;
   b) forming at least one projection of at least one output signal $y_i[k]$ onto a vector $\boldsymbol{p}_i$ which is assigned to this output signal $y_i[k]$;
   c) summing of a majority, especially all of the output signals $y_i[k]$ for forming a sum signal $s[k]$; and
   d) feeding the sum signal $s[k]$ into a device for detection, especially equalization.

2. Method as recited in Claim 1,
wherein at least two received signals $r_i[k]$ are available and the corresponding at least two outputs $y_i[k]$ are projected onto identical vectors in step b).

3. Method as recited in Claim 1,
wherein feedforward filters of a DFE with real-valued feedback filter are used for filtering of the received signals in step a), which are optimized systematically,
in particular according to the criteria ZF, MMSE, or impulse truncation.

4. Method as recited in Claim 1,
wherein the signals after the projections are utilized for optimization of the filter coefficients.

5. Method as recited in Claim 1,
wherein an arbitrary adaptive algorithm is used for adjustment of the filter coefficients of the at least one complex-valued filter.

6. Method as recited in Claim 5,
wherein the adaptive algorithm for adjustment of the filter coefficients utilizes a training sequence which is known at the receiver.

7. Method as recited in Claim 5, wherein a blind adaptive algorithm is used for adjustment of the filter coefficients.

8. Method as recited in Claim 1, wherein the corresponding orthogonal complements of the projections of at least one filtered output signal $y_i[k]$ are calculated.

9. Method as recited in Claim 1, wherein for the case of transmit antenna diversity, at least a part of the transmit signals is interpreted as interference and treated with a method according to claim 1.

10. System for interference suppression for TDMA and/or FDMA transmission, which at least approximately can be described as pulse amplitude modulation, comprising

- an arbitrary number of receive antennas;
- at least one filter device with complex-valued coefficients $f_i[k]$ for filtering of at least one complex-valued received signal $r_i[k]$ of one receive antenna for forming at least one output signal $y_i[k]$;
- at least one projection device for forming a projection of the at least one output signal $y_i[k]$ onto a vector $\boldsymbol{p}_i$ which is assigned to this output signal;
- a summation device for summing a majority, in particular all output signals $y_i[k]$ for forming a sum signal $s[k]$; and
- a detection device which processes the sum signal $s[k]$.